2001 RAPTOR SURVEY AND INVENTORY REPORT

The Status of Peregrine Falcons, Gyrfalcons, and Other Raptors and Factors Influencing Their Population Statewide, 1 July 1998–30 June 2001

LOCATION

GAME MANAGEMENT UNITS: 12, 20, 22

GEOGRAPHIC DESCRIPTION: Portions of Interior, and Western Alaska

BACKGROUND

Twenty-one species of raptors regularly breed in Alaska, ranging in size from the tiny 68 g northern pygmy owl (*Glaucidium gnoma*) to the majestic 5 kg bald eagle (*Halietus leucocephalus).* Raptors play an important role as predators in a variety of habitats, with some species feeding on dragonflies or grasshoppers and others regularly taking voles, salmon, or caribou calves. These birds of prey are highly valued by the public for viewing, photography, and falconry.

Falconry is the only permitted activity that takes raptors from the wild in Alaska. Captive propagators are allowed to transfer falconry birds from falconry to propagation permits. Nine raptor species are permitted for use in falconry and captive propagation in Alaska: northern goshawk (*Accipter gentiles*), sharp-shinned hawk (*Accipiter striatus*), red-tailed hawk (*Buteo jamaicensis*), Golden Eagle (*Aquila chrysaetos*), American kestrel (*Falco sparverius*), merlin (*Falco columbarius*), peregrine falcon (*Falco peregrinus*), gyrfalcon (*Falco rusticolus*), and great horned owl (*Bubo virginianus*) (see ADF&G 1996 for all falconry and captive breeding standards and regulations).

Gyrfalcons are the species most frequently used for falconry in Alaska. They are the largest falcon in the world and are found in tundra regions around the arctic and subarctic. Their population size in Alaska is unknown; about 180 nesting pairs have been reported and the statewide population was recently estimated at 375 to 635 pairs (Swem et al 1994). Gyrfalcons occur in a wide range of plumage colors, from the common gray to white, and dark gray/brown. The genetic and evolutionary basis for these plumages is unknown (Clum and Cade 1994). Rare color morphs of gyrfalcons are avidly sought by falconers and captive propagators.

Two subspecies of the peregrine falcon (American peregrine, *Falco peregrinus anatum*, migrant breeding in boreal forest; and Arctic peregrine, *F.p. tundrius*, migrant breeding in tundra regions) have recently recovered from near extirpation, and have been removed from endangered status in the past decade. In 1998, the population sizes of American and Arctic peregrines in Alaska were estimated at 350–400 and 225–250 pairs, respectively (S. Ambrose and T. Swem, USFWS Fairbanks, personal communication). Falconry take was initiated for Arctic peregrines in Alaska in 1996, and regulations for take of American peregrines are being developed to permit take in 2002.

METHODS

During 2001, surveys for raptors were conducted in Interior and Western Alaska (Figure 1). In the Interior, a survey of American peregrine falcons was completed on the Tanana River. In Western Alaska, raptor surveys were completed along the road system on the Seward Peninsula.

Tanana River. American peregrine falcons were surveyed along the Tanana River from the Tetlin Bridge, approximately 17 km east of Tok, to Nenana. The American peregrine falcon was removed from the Federal Endangered/Threatened list in 1999, and endangered species protocol calls for monitoring to continue for 5 years after delisting. The Tanana is one of 2 long-term study areas recommended for monitoring American peregrines by the Alaska Peregrine Recovery Team (USFWS 1982). In 2001, surveys on the Tanana were conducted by the U.S. Fish and Wildlife Service Tetlin National Wildlife Refuge (Tetlin Bridge to Robertson River), ABR, Inc. (Robertson River to Fairbanks), and the Alaska Department of Fish and Game (Fairbanks to Nenana). River bluffs and cliffs were visited to determine occupancy and productivity. The first survey was undertaken from mid-May to mid-June to document occupancy of nesting sites. The second survey in late June/early July to determine nesting success and productivity did not cover the entire study area. Sites between the Robertson and Johnson rivers, and from below Rosie Creek to Nenana were not visited in the second survey. Methods followed standardized procedures (see Bente and Wright 1993).

Western Alaska - Seward Peninsula. Road based surveys using a highway vehicle were used to check raptor and raven nesting locations along the major roads on the Seward Peninsula. Common raven nesting locations in the vicinity of Nome were checked during April and May 2001 on the roads in Nome. The Teller Road survey was completed on 20 June by driving from Nome to the Blue Stone River bridge. The Kougarok Road survey was completed on 21 June by driving from Nome to the Kuzitrin River bridge. The Council Road survey was completed on 22 June by driving from Nome to the Fox River bridge. During road-based surveys, old mining structures and cliffs visible from the road were checked for raptor occupancy using binoculars and spotting scopes.

RESULTS AND DISCUSSION

Tanana River. Forty-one pairs and 5 single adult peregrines were observed at 49 sites along the Tanana River in 2001 (Table 1). On the second survey, we resurveyed 31 of the 41 sites with pairs and found 64 young at 24 sites. Thus, 77% of the 31 pairs resurveyed were successful. Productivity averaged 2.67 young per successful nest and 2.06 young per total nesting pairs. Weather conditions in the Tanana Valley in spring and mid-summer 2001 were cooler and wetter than long-term averages. The month of June, the incubation, hatching and initial nestling period for peregrines, was slightly warmer and drier than average.

The number of pairs occupying sites in 2001 was up markedly from the previous year. Since the population on the Tanana bottomed out with no pairs observed in 1976, it grew slowly through the mid 1980s and then increased rapidly (Figure 2). From 1998–2000 the population had appeared to stabilize, but an increase of 15% was observed this year.

Peregrines were observed at 6 sites that had not been used since surveys began in 1968. One site used this year had a long history of use from at least 1927, but had not been used since 1959 and was assumed to be unsuitable because this area had become develop as Fairbanks expanded.

Productivity has remained high. Even with the number of nesting pairs exceeding twice the assumed historic level (44 in 2001 versus historic 19 pairs; USFWS 1982), productivity is positively related to abundance ($r = 0.51$, $p = 0.05$; Figure 3).

Western Alaska - Seward Peninsula. In 2001 we found raptors present at 8 nesting locations and common ravens at 5 nesting locations along the road system near Nome (Table 2). Spring snowmelt and breakup were very late on the Seward Peninsula in 2001. Despite delays in spring phenolgy, it appeared ravens were successful at rearing young as they nested on mining structures and rock cliffs that were not affected by late snow-melt. Other species were impacted by the late spring and did not occupy traditional nesting areas. The conditions in 2001 were similar to the heavy snow and very late spring conditions in 1998 that contributed to lower nesting density of raptors on the Seward Peninsula (Wright 2000). We have no estimates of fledging success from successful nests as the surveys were conducted while young were still in the nest.

MORTALITY

Harvest

Falconers are permitted to take wild raptors or acquire captive-bred raptors under regulations adopted by the Alaska Board of Game. In 2001, there were 49 falconers in Alaska: 29 Master Class, 10 General and 10 Apprentice. The total number of falconers in Alaska has remained constant over the past decade, but the proportion of Master falconers has increased from 43% in 1993 to 59% in 2001 (Figure 4). Master falconers are permitted to hold 3 raptors and take 2 from the wild in a 12-month period. Generals are permitted to hold 2 raptors and take 2 from the wild in a 12-month period; and apprentices may hold 1 raptor and may take 1 from the wild each 12 months.

Captive propagators are permitted to transfer raptors from their falconry permits with a maximum limit on a propagation permit of 6 pairs, of which no more than 4 birds may have originally been taken from the wild. In 2001, 9 Alaskans held permits for captive breeding of raptors. The first permit for captive-breeding in Alaska was issued in 1988, a second in 1990, 2 in 1994, 2 in 1995 and the remainder in 2000.

In 2001 only 4 raptors were reported taken from the wild in Alaska. In the prior 10 years an average of 14 were taken each year (Figure 5). The northern goshawk was the taxa taken most frequently during the past 5 years, followed closely by the gyrfalcon, and then by the Peale's peregrine (Table 3).

Alaskan falconers and captive propagators held 107 raptors in 2001 (Table 4). Far more Gyrfalcons (75) were held than any other taxa, followed by the Peale's peregrine (11), Northern goshawk (9), and Red-tailed Hawk (6).

Captive-breeding was begun in Alaska with the intent of reducing the take of birds from the wild by providing captive-bred raptors to falconers. Captive-breeders hold 21 wild birds in breeding programs today, while falconers hold only 5 captive-bred raptors (Figure 6). Five of 33 (15%) gyrfalcons held by falconers came from captive breeders, while 28 were taken from the wild. Including all species of raptors held by falconers, just 8% were provided by captive breeders (Figure 7).

A total of 44 raptors have been produced through captive propagation in Alaska (Figure 8), all by 2 permittees. Gyrfalcons have been the only species produced. The majority (57%) of progeny have gone to Alaskan propagators, only 27% have been used for falconry in Alaska (Figure 9). In 2000 and 2001, 5 of the 18 (28%) raptors produced by Alaska propagators have gone to falconers or breeders outside of Alaska.

CONCLUSIONS AND RECOMMENDATIONS

The American peregrine was delisted from Federal Endangered/Threatened status in August 1999. A 5 year post-delisting monitoring period will continue through year 2004 with annual surveys of the Upper Yukon and Tanana river study areas conducted under coordination of the US Fish and Wildlife Service. A range-wide survey of American peregrines in Alaska should also be completed by 2004. The Tanana River population continued to occupy new nest sites and reproduce at high levels in 2001. A national harvest program for eyas (nestling) American peregrines has been and a harvest plan for passage (flying first year birds) is being developed. The Alaska Board of Game adopted regulations allowing a harvest of eyas American peregrines in 2002.

Information gained in preliminary surveys on the Seward Peninsula and in Northwest Alaska in 2001 will be used to establish long-term study areas to monitor occupancy and productivity of gyrfalcons. Because of the relative rarity of some color morphs of gyrfalcons and the great demand for those rare colored birds by falconers and captive propagators, monitoring these gyrfalcon populations is a high priority.

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Figure 1. Map of Alaska with study areas, 2001.

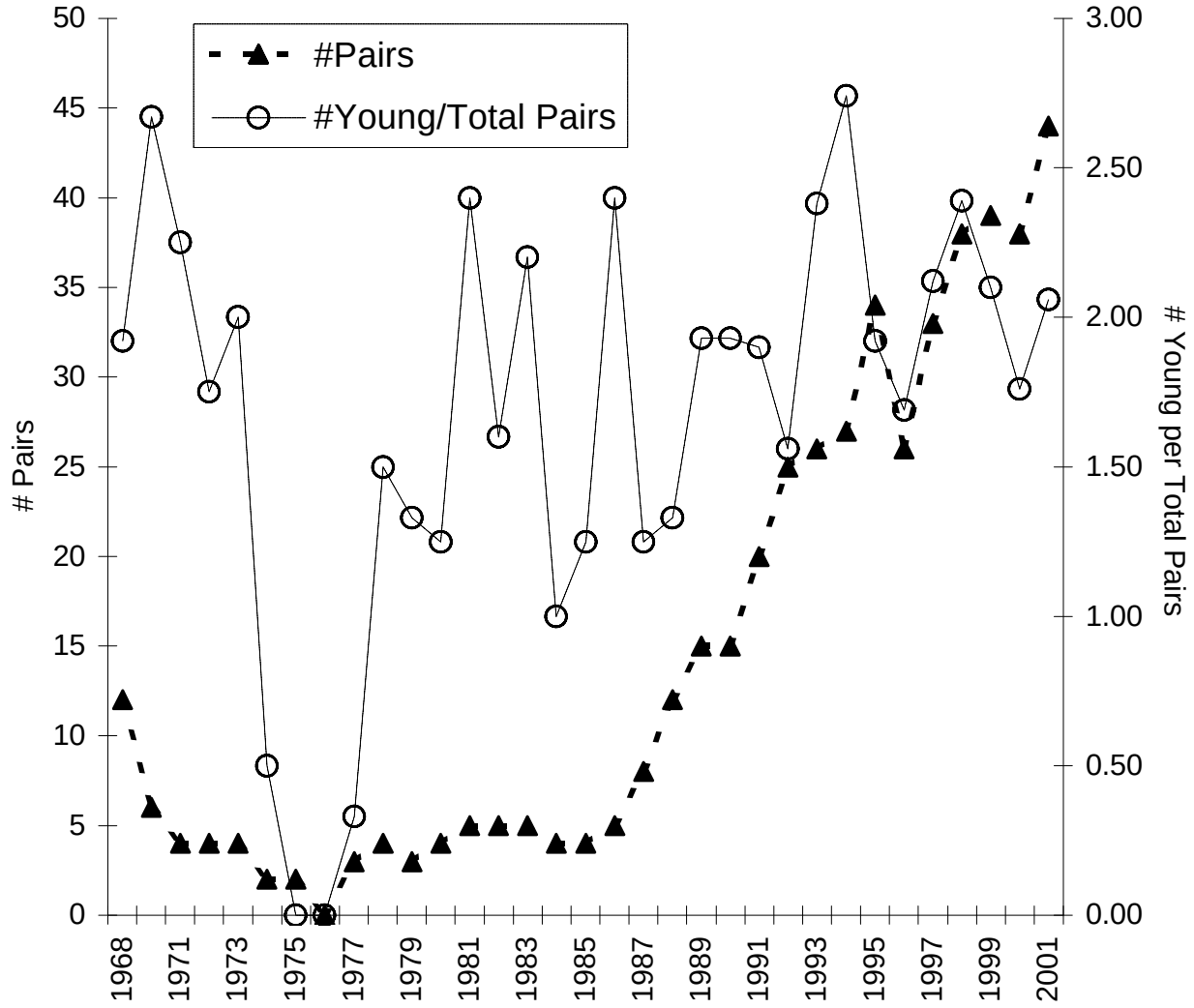

Figure 2. Number of American peregrine falcon pairs and average number of young per total pairs, Tanana River, 1968–2001.

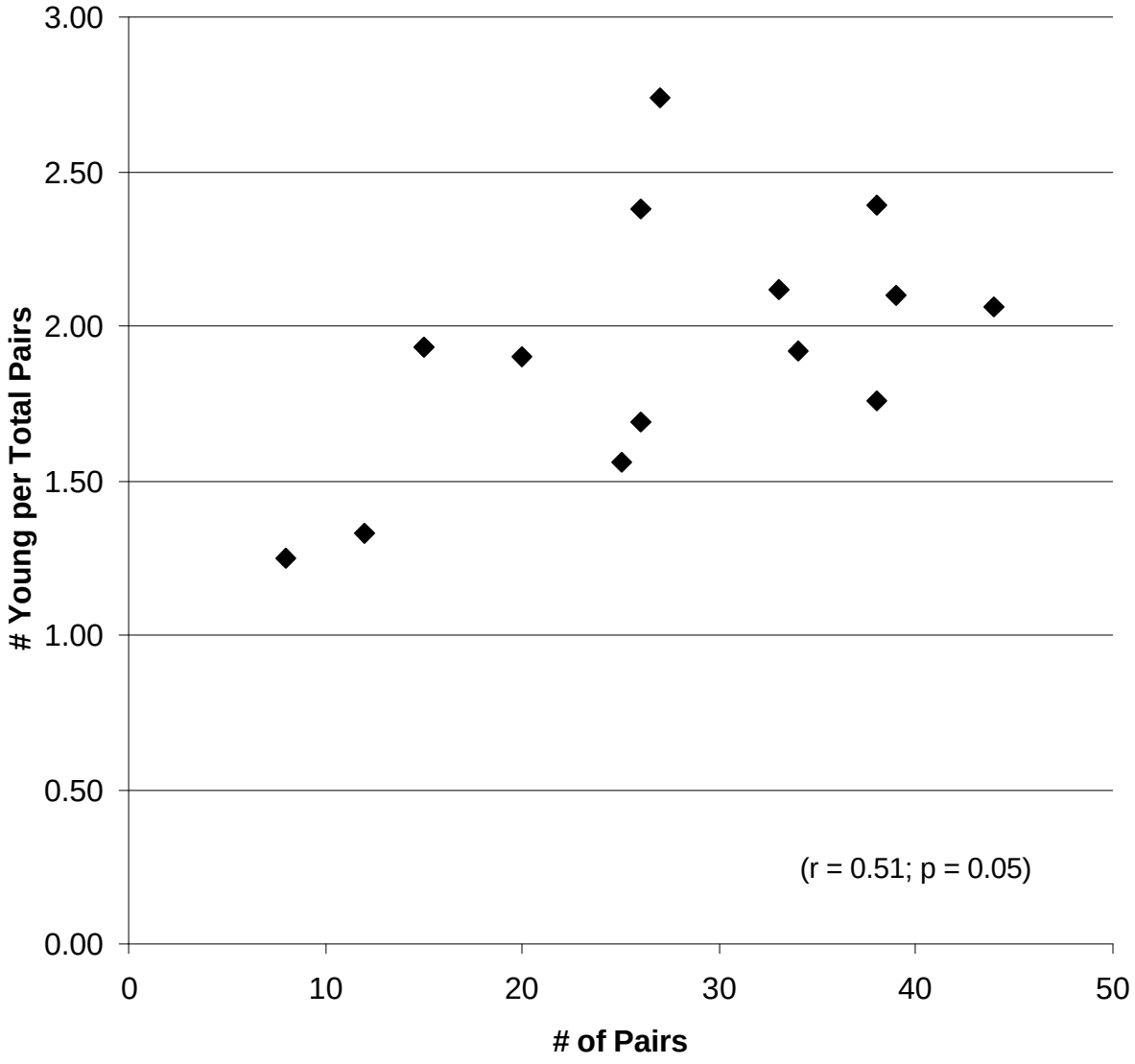

Figure 3. Relationship of abundance of nesting American peregrine falcons and productivity, Tanana River, 1987–2001.

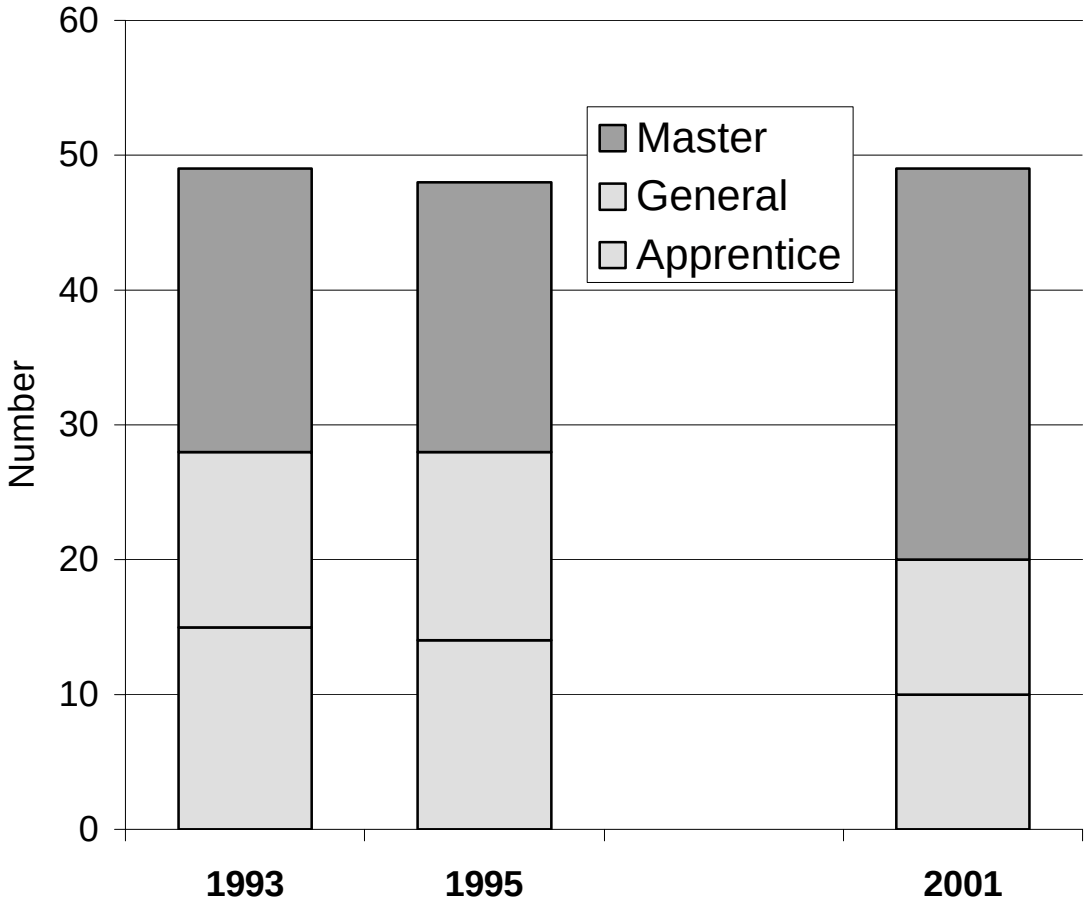

Figure 4. Number of falconers (by class) in Alaska.

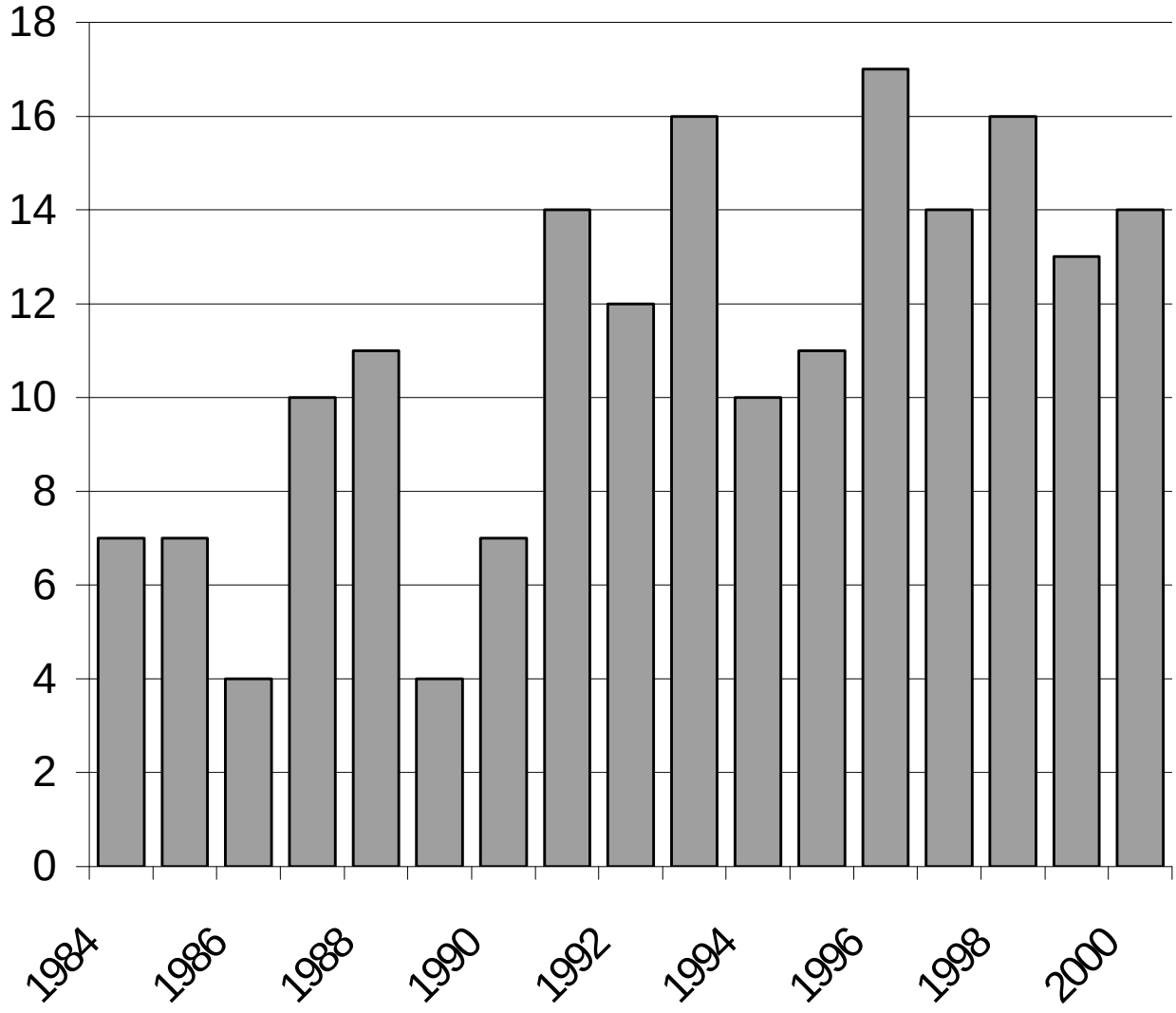

Figure 5. Number of wild raptors taken by falconers in Alaska, 1984–2000.

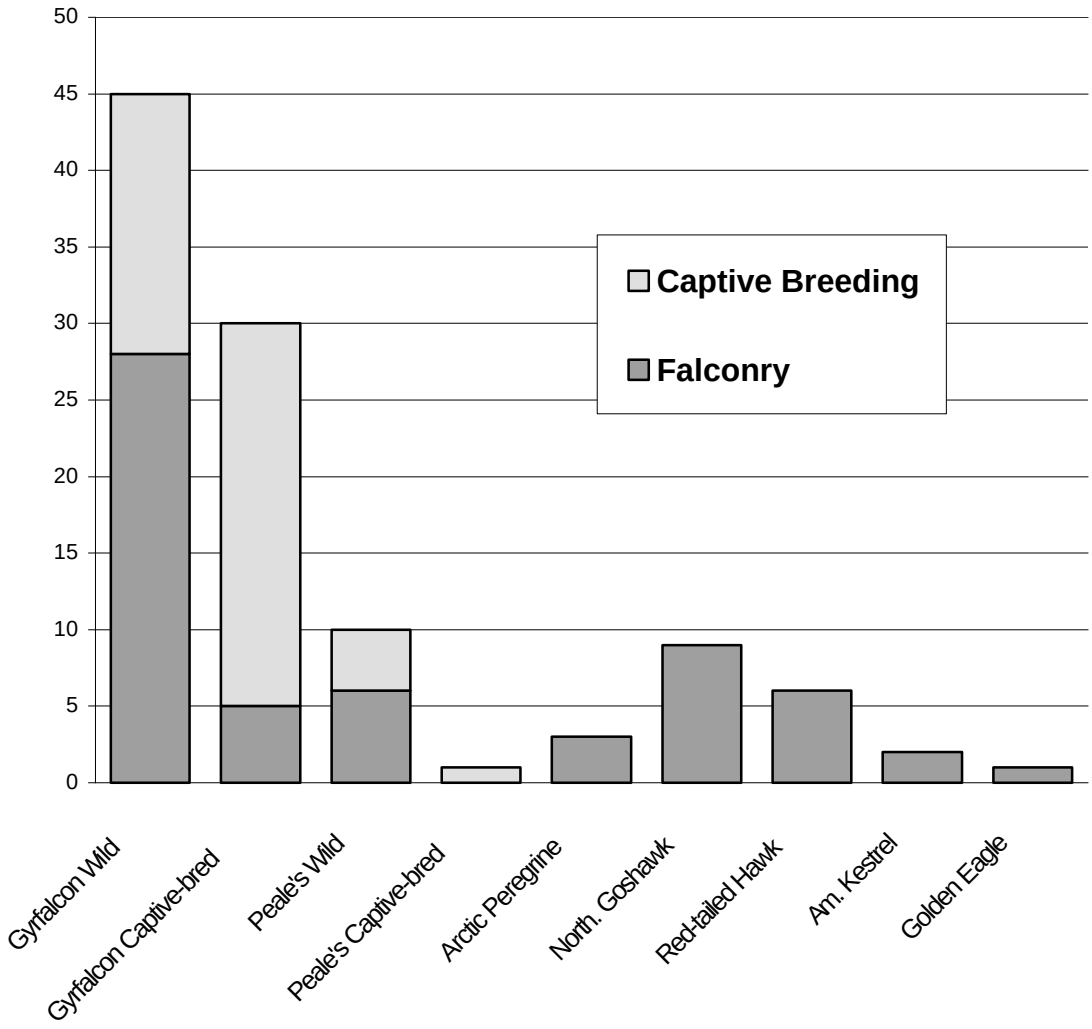

Figure 6. Number of raptors held by falconers and captive propagators in Alaska, 2001.

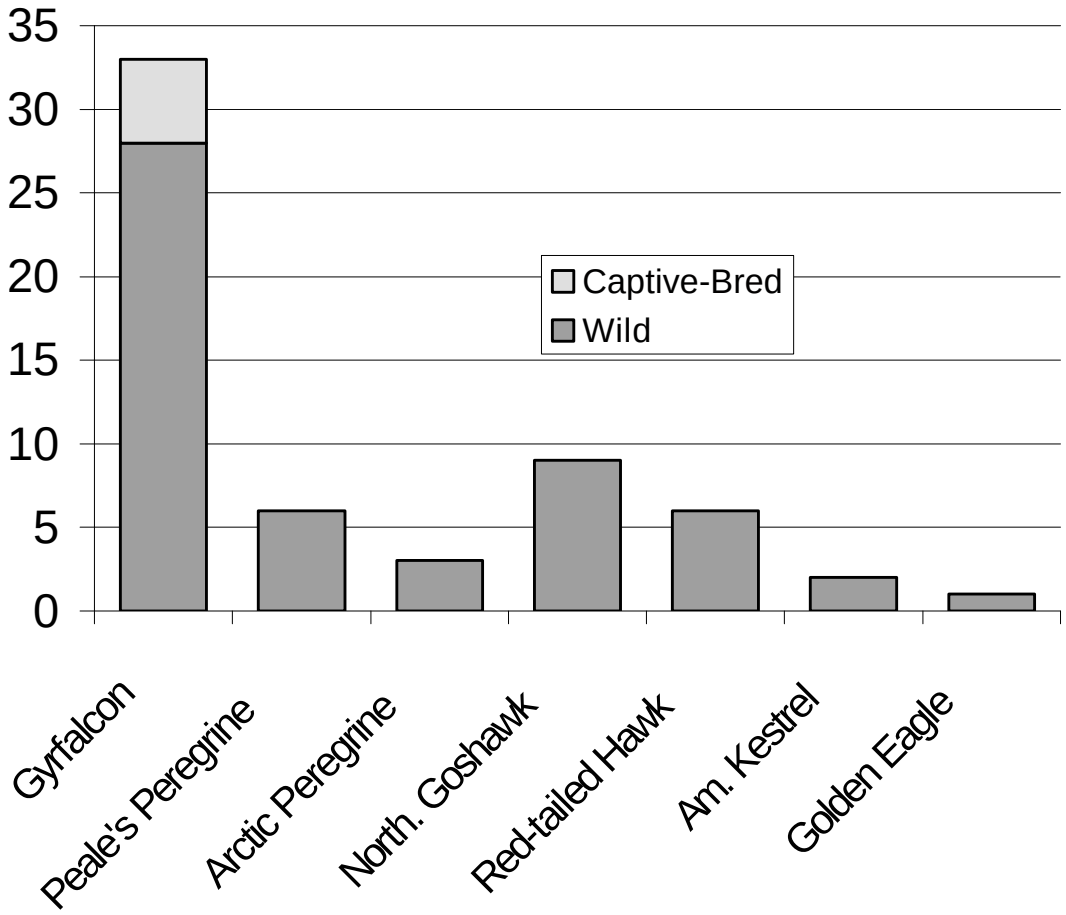

Figure 7. Origin of raptors held by Alaska falconers, 2001.

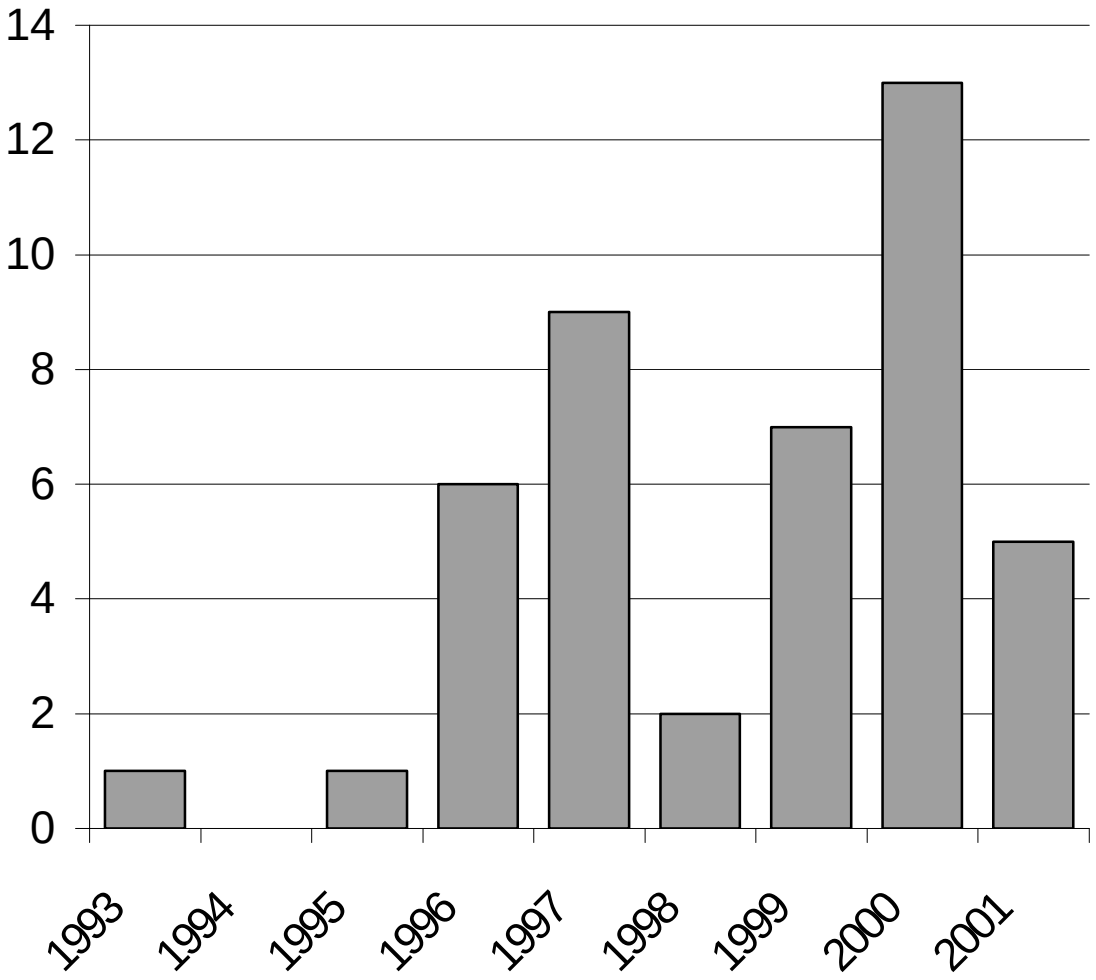

Figure 8. Number of raptors produced by captive propagators in Alaska.

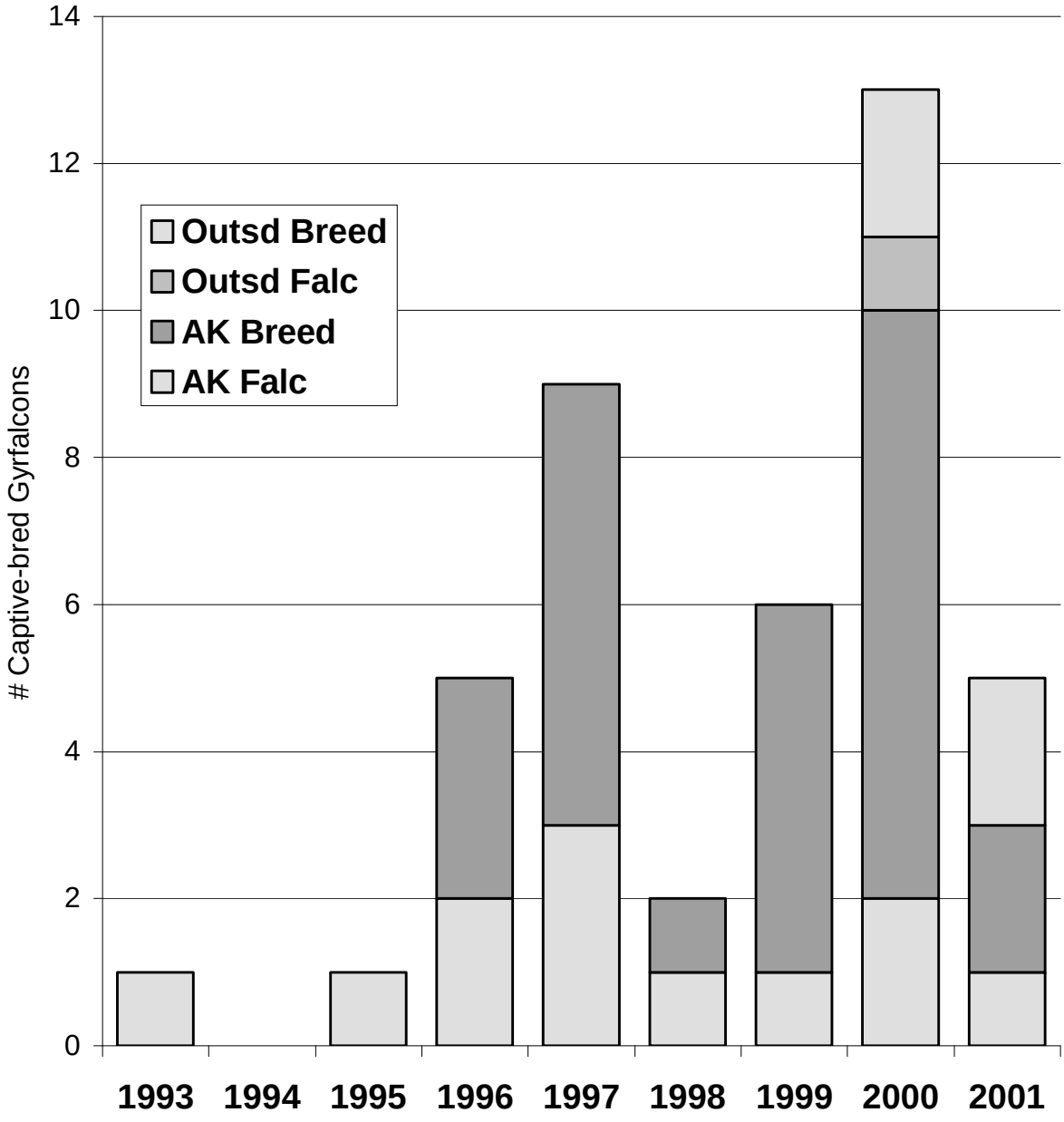

Figure 9. Disposition of captive-bred raptors produced by Alaska propagators.

Table 1 Occupancy and productivity of peregrine falcons, Tanana River, Alaska, 1968–2001[a].

	Occupancy			Productivity		
Year	Lone Adults	Total Pairs	Successful Pairs	Number of Young	Young Per Total Pairs	Young Per Successful Pair
1968	0	12	11	23	1.92	2.09
1970	0	6	6	16	2.67	2.67
1971	0	4	3	9	2.25	3.00
1972	0	4	3	7	1.75	2.33
1973	0	4	4	8	2.00	2.00
1974	0	2	1	1	0.50	1.00
1975	1	2	0	0	0	--
1976	2	0	0	--	--	--
1977	0	3	1	1	0.33	1.00
1978	0	4	3	6	1.50	2.00
1979	3	3	2	4	1.33	2.00
1980	0	4	2	5	1.25	2.50
1981	0	5	5	12	2.40	2.40
1982	0	5	3	8	1.60	2.67
1983	0	5	4	11	2.20	2.75
1984	1	4	2	4	1.00	2.00
1985	0	4	3	5	1.25	1.67
1986	2	5	4	12	2.40	3.00
1987	0	8	5	10	1.25	2.00
1988	1	12	9	16	1.33	1.78
1989	0	15	11	29	1.93	2.64
1990	3	15	9	29	1.93	3.22
1991	0	20	16	38	1.90	2.38
1992	3	25	16	38	1.56	2.44
1993	1	26	19	62	2.38	3.26
1994	1	27	24	74	2.74	3.08
1995	3	34	26	71	2.09	2.73
1996	7	27	17	44	1.69	2.59
1997	3	33	28	70	2.12	2.50
1998	2	38	32	91	2.39	2.84
1999	1	39	28	84	2.15	3.00
2000	2	38	26	68	1.79	2.62

2001	5	44	24[b]	64[b]	2.06[b]	2.67[b]

[a] Data for 1968-1978 from a review by Roseneau et al. 1981. Data for 1979–1990 from US Fish and Wildlife Service, Endangered Species, Fairbanks, Alaska unpublished summaries. Data for 1991–1994 from Bente and Wright 1995. Data for 1997-2001 from Ritchie et al. 2000 and Ritchie 2001.

[b] Only 33 sites revisited during second survey; 24 of 31 sites with pairs were successful (77%)

Table 2 Road-based raptor observations on the Seward Peninsula, 2001

Location	Description	Species	Occupancy
Nome Area			
Martinson 1	Abandoned crane	CORA	Pair w/young
Martinson 2	Piling post	CORA	Pair w/young
Swanberg	Gold dredge	CORA	Pair w/young
Osborne	Gold dredge	CORA	Pair w/young
Teller Road			
Mile 5.0	Rock spire	--	Remnant sticknest
Mile 10.0	Rim rock	--	Vacant
Mile 11.5	Rock cliff	--	Vacant
Mile 12.0	Penny R spire	--	Vacant
Mile 15.0	Rim rock	--	Empty sticknest
Mile 16.5	Rock cliff	--	Unknown
Mile 20.0	Rock cliff	--	Unknown
Mile 25.0	Rock cliff	--	Unknown
Mile 29	Rock dome	--	Unknown
Mile 46.5	Rock cliff	--	Empty sticknest
Mile 55.5	Rock cliff	--	Empty sticknest
Mile 57.1	Rock cliff	--	Vacant
Mile 57.8	Rock cliff	GYRF	Pair w/young
Kougarok Road			
Mile 14.0	Rim rock	--	Vacant
Mile 17.0	Rock cliff	GOEA	Pair w/ 1 young
Mile 18.0	Rock cliff	GYRF	Single adult
Mile 18.5	Creek cliff	--	Empty stick
Mile 24.5	Rock cliff	GYRF	Single adult
Mile 27.0	Rock cliff	--	Vacant
Mile 42.5	Rock cliff	--	Vacant
Mile 45.5	Rock cliff	GYRF	Single adult
Mile 48.0	Rock cliff	GYRF	Pair w/young
Mile 58.0	River cliff	--	Vacant
Council Road			
Mile 12.0	Quarry	PEFA	Single adult
Mile 12.0	Quarry	CORA	Pair w/young
Mile 44	Rock cliff	--	Empty sticknest

Mile 46	Rock cliff	--	Vacant
Mile 47.5 West	Rock cliff	--	vacant
Mile 48.0 East	Rock cliff	GOEA	Single adult

Table 3 Raptors taken from the wild in Alaska by falconers, 1997–2001.

Species	1997	1998	1999	2000	2001	Total
Northern Goshawk	2	2	6	5	4	19
Red-tailed Hawk	2	1	0	1	0	4
American Kestrel	1	1	1	1	0	4
Merlin	1	4	0	0	0	5
Arctic Peregrine Falcon	1	2	1	0	0	4
Peale's Peregrine Falcon	1	3	2	4	0	10
Gyrfalcon	5	3	3	3	0	14
Total	13	16	13	14	4	60

Table 4 Raptors held by falconers and captive propagators in Alaska, 2001.

	Falconry		Propagation	
	Wild Origin	Captive-Bred	Wild Origin	Captive-Bred
Northern Goshawk	9			
Red-tailed Hawk	6			
Golden Eagle	1			
American Kestrel	2			
Arctic Peregrine	3			
Peale's Peregrine	6		4	1
Gyrfalcon	28	5	17	25
Total	55	5	21	26